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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

PATTERSON, M

ART UNIT

PAPER NUMBER

1772

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9

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

**Office Action Summary**

Application No.

09/462,179

Applicant(s)

PEDUTO ET AL.

Examiner

Marc A Patterson

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **WITHDRAWN REJECTIONS**

1. The 35 U.S.C. 112 second paragraph rejections of Claims 1, 6 – 13, 16 and 18 – 19 , of record on page 2 of the previous Action, are withdrawn.

### **NEW REJECTIONS**

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 recites the limitation "internal intermediate layers and the external intermediate layers" in the first and second lines of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the limitation will be assumed to refer to intermediate layers having the composition of the internal and external layers. Correction and / or clarification is necessary.

4. Claim 10 recites the limitation "external intermediate layers" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the limitation will be assumed to refer to intermediate layers having the composition of the external layer. Correction and / or clarification is necessary.

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5. Claim 11 recites the limitation "external intermediate layer" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the limitation will be assumed to refer to intermediate layers having the composition of the external layer. Correction and / or clarification is necessary.

6. Claim 12 recites the limitation "internal intermediate layers" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the limitation will be assumed to refer to intermediate layers having the composition of the internal layer. Correction and / or clarification is necessary.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 – 8, 9 – 12 and 14 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerschbaumer (U.S. Patent No. 5,219,003) in view of Princiotta et al. (European Patent 0646627). Kerschbaumer discloses a three – layered tube having impact resistance – modified layers. The internal layer consists of polyamide 6, with an added impact resistance modifier which may be a polyethylene rubber component (column 2, lines 39 – 47). The middle layer, which serves as a barrier layer and is identical to the outer layer, consists of

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Grilon CA6E, an amorphous copolyamide based on caprolactam and laurolactam (a lactam which corresponds to an amino acid having at least 9 carbons), and Grilamid XE3148, an impact resistance modifier (column 3, lines 1 – 40; Table 1). The tube may comprise additional barrier layers, separated by additional layers having the composition of the internal or external layers (column 2, lines 58 – 62). All of the layers, except for the barrier layers, comprise plasticizer (claim 3).

The invention of Kerschbaumer differs from the claimed invention in that the polyethylene rubber component which is used as an impact resistance modifier is not an acid – modified ultra low density polyethylene. Princiotta et al. teach an acid – modified ultra low density polyethylene which is used as an impact modifier of polyamide 6 (page 2, lines 31 – 58). It would therefore have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the hose disclosed by Kerschbaumer with the polyethylene taught by Princiotta et al. in order to obtain the strength characteristics disclosed by Princiotta et al. A  $T_g$  below 0 degrees Celsius, a modulus of less than 200 MPa and a melt flow index of between 0.1 and 7 g/10min measured at 190 degrees Celsius under a load of 2.16 kg would be expected for the ultra low density polyethylene taught by Princiotta et al., as it is identical to that of the claimed invention.

The invention of Kerschbaumer also differs from the claimed invention in that the outer (barrier) layer does not comprise a second polyamide comprising polyamide 6. Kerschbaumer teaches, however, that it is known in the art to use polyamide 6 as a barrier layer in the making of multilayered hoses (column 2, lines 10 – 19). It would therefore have been obvious to one of ordinary skill in the art to blend polyamide 6 with Grilon CA6E to produce the outer layer, in

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order to obtain a barrier layer having the combined properties of polyamide 6 and Grilon CA6E. The amount of plasticizer which is added to the inner layer (which determines its *modulus*), as well as the amount of impact resistance modifier added to both layers, are design optimizations, and it would have been obvious to one of ordinary skill in the art to vary these parameters in order to obtain the desired mechanical properties and impact resistance for both layers.

With regard to Claim 8, Kerschbaumer also fails to disclose intermediate layers having the composition of the internal and external layers which are arranged alternately in the transverse direction of the structure. However, Kerschbaumer discloses intermediate layers having the composition of the internal and external layers (column 2, lines 58 – 63). It would be obvious for one of ordinary skill in the art to vary the location of the layers (which will determine whether the layers are arranged alternately in the transverse direction of the structure) since the location of the layers would be readily determined through routine experimentation by one having ordinary skill in the art depending on the desired end result. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980).

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerschbaumer (U.S. Patent No. 5,219,003) in view of Princiotta et al. (European Patent 0646627) and further in view of VanBuskirk et al (U.S. Patent No. 5,357,030).

Kerschbaumer and Princiotta et al. disclose a three – layered tube comprising a polyamide 6 layer as discussed above. Kerschbaumer and Princiotta et al. fail to disclose a polyamide 6 layer which comprises a chain extender which is present at a concentration of 0.05% and 5% by weight of the layer.

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VanBuskirk et al teach the addition of a chain extender to polyamide 6 for the purpose of improving the physical characteristics of the polyamide 6 in the making of extruded products (column 1, lines 38 – 59; column 2, lines 58 – 68).

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for the addition of a chain extender to polyamide 6 in Kerschbaumer and Princiotta et al. in order to improve the physical characteristics of the polyamide 6 in the making of extruded products as taught by VanBuskirk et al.

#### ANSWERS TO APPLICANT'S ARGUMENTS

10. Applicant's arguments regarding the 35 U.S.C. 112 second paragraph rejections of Claims 1, 6 – 13, 16 and 18 – 19 have been considered and have been found to be persuasive. The rejections are therefore withdrawn. The new 35 U.S.C. 103(a) rejection of Claim 8 as being unpatentable over Kerschbaumer (U.S. Patent No. 5,219,003) in view of Princiotta et al. (European Patent 0646627) and the new 35 U.S.C. 103 (a) rejection of Claim 13 as being unpatentable over Kerschbaumer (U.S. Patent No. 5,219,003) in view of Princiotta et al. (European Patent 0646627) and further in view of VanBuskirk et al (U.S. Patent No. 5,357,030) are discussed above.

Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of Claims 1- 7, 9 – 12 and 14 – 20 as being unpatentable over Kerschbaumer in view of Princiotta et al. have been considered but have not been found to be persuasive for the reasons set forth below.

Applicant argues, on page 8 of Paper No. 8, that Kerschbaumer does not disclose an external layer comprising Grilon CA6E, and therefore does not comprise a polyamide

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composition comprising a copolymer obtained by copolymerization of epsilon – caprolactam with an amino acid comprising at least 9 carbons or the corresponding lactam; Grilon CA6E, Applicant argues, is disclosed only in the middle layer of Kerschbaumer. However, Grilon CA6E is clearly disclosed in the middle layer (with Grilamid ELY20NZ and Grilon XE 3139) and in the external layer (with Grilamid XE 3148) of Kerschbaumer (column 3, lines 1 – 40; Table 1).

Applicant also argues, on page 9, that Grilon CA6E is not a polyamide composition comprising a polyamide copolymer obtained by copolymerization of epsilon – caprolactam with an amino acid comprising at least 9 carbon atoms or a corresponding lactam. However, as stated on page 2 of the previous Action, Grilon CA6E is a caprolactam / lauro lactam copolymer. It is therefore a copolymer of caprolactam (epsilon – caprolactam) with lauro lactam which is the corresponding lactam to lauric acid (an amino acid having more than 9 carbon atoms). Furthermore, as it is a copolymer of the two lactams, it can only be obtained by copolymerizing the two lactams.

Applicant also argues, on page 10, that the caprolactam / lauro lactam weight ratio which is disclosed by Kerschbaumer is not between 4 and 9. However, Kerschbaumer discloses a caprolactam / lauro lactam weight ratio of 1.5 (the weight ratio of Grilon CA6E). It would be obvious for one of ordinary skill in the art to vary the caprolactam / lauro lactam weight ratio, since the weight ratio would be readily determined through routine experimentation by one having ordinary skill in the art depending on the desired end result. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980).

Applicant also argues on page 10 that the combination of Kerschbaumer with Princiotta et al. is improper because the impact resistance modifiers which are disclosed by Kerschbaumer



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are rubbery olefinic compounds, which do not suggest the ultra low density polyethylene taught by Princiotta et al. However, Princiotta et al. teaches that ultra low density polyethylene and rubbery olefinic compounds are equivalent as impact resistance modifiers for polyamides; ultra low density polyethylene is used for the purpose of providing excellent impact strength at low temperature (page 2, lines 8 – 36). It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for ultra low density polyethylene rather than a rubbery olefinic compound as an impact resistance modifier in Kerschbaumer in order to provide excellent impact strength at low temperature as taught by Princiotta et al.

Applicant also argues on page 10 that the combination of Kerschbaumer with Princiotta et al. is improper because Princiotta et al. do not teach the use of ultra low density polyethylene as an impact resistance modifier for a caprolactam – amino acid copolymer, or for a multilayer structure. However, as stated above, the internal layer disclosed by Kerschbaumer consists of an extruded layer of polyamide 6, and Princiotta et al. teach the use of ultra low density polyethylene as an impact resistance modifier for polyamide 6 in the making of an extruded article. It is therefore not necessary for Princiotta et al to teach the use of the impact resistance modifier in a multilayer structure.



### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc Patterson, whose telephone number is (703) 305-3537. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If

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attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (703) 308-2364. FAX communications should be sent to (703) 305-3599. FAXs received after 4 P.M. will not be processed until the following business day.

M.A.P.

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  


11/5/01